

INTERNATIONAL COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

To:

see form PCT/ISA/220

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/IB2005/000477

International filing date (day/month/year)
25.02.2005

Priority date (day/month/year)
27.02.2004

International Patent Classification (IPC) or both national classification and IPC
H01G4/12, H01G4/33, H01L21/8246, H01L27/00

Applicant
ENERGENIUS, INC.

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☒ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☒ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

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WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITYInternational application No.
PCT/IB2005/000477

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
 - ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
 - ☐ a sequence listing
 - ☐ table(s) related to the sequence listing
 - b. format of material:
 - ☐ in written format
 - ☐ in computer readable form
 - c. time of filing/furnishing:
 - ☐ contained in the international application as filed.
 - ☐ filed together with the international application in computer readable form.
 - ☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

Box No. II Priority

1. ☒ The validity of the priority claim has not been considered because the International Searching Authority does not have in its possession a copy of the earlier application whose priority has been claimed or, where required, a translation of that earlier application. This opinion has nevertheless been established on the assumption that the relevant date (Rules 43bis.1 and 64.1) is the claimed priority date.
2. ☐ This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43bis.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.
3. Additional observations, if necessary:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/IB2005/000477

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	2, 6, 7, 12-14, 17, 19, 20
	No: Claims	1, 3-5, 8-11, 15, 16, 18
Inventive step (IS)	Yes: Claims	
	No: Claims	1-20
Industrial applicability (IA)	Yes: Claims	1-20
	No: Claims	

2. Citations and explanations

see separate sheet

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

Re Item V.

- 1). Reference is made to the following documents:
D1 : XP004399551
D2: US 2002/177008 A1
D3 : XP001206786
D4: EP 0 618 598 A
- 2). The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 1 and 18 is not new in the sense of Article 33(2) PCT, for the following reasons:
 - 2.1 Considering claim 1, document D1 discloses a method for making a multi-layer thin film composite (*see especially paragraph 2.*), which comprises:
 - a) depositing onto a substrate a precursor composition for a buffer layer, the composition comprising an organic solvent, a polymeric heterocyclic amide and organic metallic compounds
 - b) heating the product of step a) to render a composite of a buffer layer and substrate
 - c) depositing thereon a precursor composition for a dielectric thin film layer comprising an organic solvent and organic metallic compound
 - d) heating the product of step c) to render a composite wherein the buffer layer is between the substrate and the dielectric thin film layer
 - e) annealing the product of step d)
 - 2.2 As regards claim 18, D1 describes a ferroelectric multi-layer thin film composite comprising a metallic substrate and at least one crystalline layer prepared by the process disclosed in paragraph 2.1 above.
- 3). Moreover, the present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of independent claims 19 and 20 does not involve an inventive step in the sense of Article 33(3) PCT, for the following reasons:

- 3.1 D1 discloses a thin film dielectric with a thickness of 40 nm and an annealing temperature of 760 °C.

The subject-matter of claim 19 differs from the method known from D1 in that a thin film dielectric with a thickness of 50 to 900 nm is formed and in that the annealing temperature lies between 550 and 750 °C.

However the ranges claimed are close to the values of D1 and thickness values in the claimed ranges are known from the prior art, see e.g document D2, table 1, which also discloses annealing temperature of 750 °C, see paragraph [0151].

The method according to claim 19 further differs from the method known from D1 in that the precursor for the buffer layer contains polyvinylpyrrolidone.

The problem to be solved by the present invention may be regarded as providing an alternative organic compound in the dielectric precursor layer.

However, layers as claimed having a precursor containing polyvinylpyrrolidone are known from D2 and D3. It would come within the scope of normal practice followed by the skilled person to include polyvinylpyrrolidone as organic compound in the buffer layer disclosed in D1.

Thus the solution proposed in claim 1 of the present application can not be considered as involving an inventive step (Article 33(3) PCT).

- 3.2 As regards claim 20, a pyroelectric sensor device is described in D1, see the first paragraph. Considering the objections raised above, the device of claim 20 does not involve an inventive step.

- 4). Dependent claims 2-17 do not contain any features which, in combination with the features of claim 1 to which they refer, meet the requirements of the PCT in respect of novelty or inventive step:

- 4.1 The features of claims 3-5, 8-11, 15 and 16 are already known from D1.

- 4.2 As concerns claims 2, 6, 7, 12-14 and 17, their subject matter consists in obvious selections of ranges of values or obvious combinations of features known from the cited prior art.

Re Item VIII.

- 1.) For sake of clarity, claim 1 should be directed to a "method of making a multi-layer thin film ferroelectric composite".
- 2.) Claim 20 should define a capacitor or a device "containing the multi-layer thin film ferroelectric composite made by the method of claim 19".